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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,178	01/14/2005	Kiyoharu Yonemaru	Q86241	9224

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EXAMINER	
ROSS, DANA	

ART UNIT	PAPER NUMBER
3722	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/521,178	YONEMARU, KIYOHARU	
	Examiner	Art Unit	
	Dana Ross	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *1-3 and 11-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/14/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant elected to prosecute the invention of Group II, method for processing a screw rotor, in the response filed 1 August 2006. Group II consists of claims 4-10. Examiner notes that Applicant further elected Species I of Group III that includes claim 11. However, since claim 11 (a shaving bit) is not part of Group II (method) claims, claim 11 is withdrawn.

Claims 1-3 and 11-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1 August 2006.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Applicant is referred to page 1 of the disclosure under "Background Art" and the listing of the PCT patent and reference to specific Figure numbers.

3. The information disclosure statement filed 14 January 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed.

Examiner notes that four of the cited documents on the IDS are listed in the International Search Report, and are reported as not being anticipated or obvious over the elected claims.

However, German document 2-263634 dated 01-04-1974 is also included on the IDS, and is stated as being on International Search Report, but a copy has not been provided and is not listed on the International Search Report.

DE 2-263634 has been placed in the application file, but the information referred to therein has not been considered.

Drawings

4. Figure 16A (see page 6 of disclosure) should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 4-10 are rejected under 35 U.S.C. 102(b) as being anticipate by Applicant's Admitted Prior Art (AAPA)

AAPA addresses the specifics of the machine tool structure for the machining of the screw rotor and the various methods of machining a screw rotor that are currently well known in the art. Examiner notes that page 2, next to last paragraph, states "To solve the above described problems, it is a first object of the present invention to provide a method and apparatus...using a commercially-available five-axis NC machine tool..."

See also page 3, paragraph 1 "A third object of the present invention...which the accuracy of the shape of a groove, which is determined depending on the processing apparatus, arrangement, and tool in the known processing method and apparatus...".

See also page 3, paragraph 3, "A fifth object of the present invention...both an inexpensive commercially-available tool and an expensive special tool are used in combination..."

See also page 3, paragraph 4, "A sixth object of the present invention...which is provided in the screw rotor in the known methods..."

7. Claims 4, 5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipate by US Pat. No. 5,964,016 (Ito et al., hereafter '016).

'016 teaches a machine tool with tool holder 6 and end mill T movable in the X, Y and Z axes and a rotating cylindrical workpiece W (see figure 3, for example); a bed 2, an axis supporter 1 (C-axis supporter) disposed on the bed 2, a shaft 1a (C-axis shaft) for rotating the cylindrical workpiece W (see figure 1, for example); a column 3 disposed on the bed 2 (see figure 1, for example); the tool holder 6 (blade holder) rotatably held by the column 3 (see figure 1, for example); the tool T attached to the tool holder 6 (see figure 1, for example).

Examiner notes that when milling, the tool will first shave the outer surface of the workpiece prior to entering the workpiece and performing the second step of shaving the sides surfaces and bottom.

Regarding the measuring process of claim 10, it is noted that a measuring process is, at a minimum, determined by the programming (controller 12) of the machine and the tool size that is chosen based on the machining required at the time (see col. 5, lines 15-24, for example).

In the event Applicant does not agree that the machine tool as taught by '016 can be used on the specific workpiece of a "screw rotor", Applicant is referred to the below 35 USC 103 rejection.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 4, 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of US Pat. No. 6,122,824 (Jensen, hereafter 824).

'016 teaches all aspects of the structure of Applicant's claimed apparatus as is discussed in the above claim rejections.

'016 teaches all aspects of the machine as claimed.

'016 does not expressly disclose the workpiece being machined is a screw rotor.

'824 teaches it is well known in the art to have machining on a screw rotor with a machine that moves in three directions with an end mill tool 82 and with the rough cut on the outer surface (see figure 6A) of a rotating workpiece (rotor) and a shaving of the sides and bottom (see figure 6B).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of milling a generic workpiece of '016 with the specific workpiece as taught by '824 for the purpose of creating a rotor with discrete arched-helical flutes that have ruled surface roots that match the predominately planar tips of the teeth of the associated gate rotors and provide effective fluid sealing as the gate rotor teeth sweep through the flutes of the main rotor during compressor or expander operations (see '824 abstract).

10. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of US Pat. No. 6,604,015 (Iriguchi et al., hereafter '015).

'016 teaches all aspects of the structure of Applicant's claimed apparatus as is discussed in the above claim rejections.

'016 teaches all aspects of the machine as claimed.

'016 does not expressly disclose the type of milling tool used or how the controller controls the tool.

'015 teaches it is well known in the art to have a controller that controls the type of tool used though input of tool data as to the use of an ball end mill, flat end mill, radial end mill, tool diameter tools etc.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the generic controller as taught by '016 to include the specific controller as taught by '015 for the purpose of providing a numerically controlling method capable of improving the working quality without degradation of the operation efficiency (see '015 col. 2, lines 54-58, for example).

11. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of '824 and in view of '015.

'016 teaches all aspects of the machine as claimed.

'016 does not expressly disclose the type of milling tool used or how the controller controls the tool.

'015 teaches it is well known in the art to have a controller that controls the type of tool used though input of tool data as to the use of an ball end mill, flat end mill, radial end mill, tool diameter tools etc.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the generic controller as taught by '016 to include the specific controller as taught by '015 for the purpose of providing a numerically controlling method capable of improving the working quality without degradation of the operation efficiency (see '015 col. 2, lines 54-58, for example).

12. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of '015.

AAPA teaches all aspects of the machine as claimed.

AAPA does not expressly disclose the type of milling tool used or how the controller controls the tool.

'015 teaches it is well known in the art to have a controller that controls the type of tool used though input of tool data as to the use of an ball end mill, flat end mill, radial end mill, tool diameter tools etc.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the generic controller as taught by AAPA to include the specific controller as taught by '015 for the purpose of providing a numerically controlling method capable of improving the working quality without degradation of the operation efficiency (see '015 col. 2, lines 54-58, for example).

13. Claim 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of '824 and in view of US Pat. No. 6,077,002 (Lowe, hereafter '002).

'016 teaches all aspects of claim 5 above.

'016 is silent as to the type of milling tool used (end mill or ball end mill).

'002 teaches it is well known in the art to use a round (ball end mill) in the milling process for multiple paths through a cut (see figure 1, for example).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the generic end mill as taught by '016 to include the well known use of a ball end mill (round end mill) as taught by '002 for the purpose of creating a groove having a bottom cut first across the blank to partially expose a sidewall in the workpiece and then the sidewall to improve efficiency and accuracy (see '002 abstract).

14. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of '002.

'016 teaches all aspects of claim 5 above.

'016 is silent as to the type of milling tool used (end mill or ball end mill).

'002 teaches it is well known in the art to use a round (ball end mill) in the milling process for multiple paths through a cut (see figure 1, for example).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the generic end mill as taught by '016 to include the well known use of a ball end mill (round end mill) as taught by '002 for the purpose of creating a groove having a bottom cut first across the blank to partially expose a sidewall in the workpiece and then the sidewall to improve efficiency and accuracy (see '002 abstract).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is 571-272-4480. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on 571-272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dana Ross
Examiner
Art Unit 3722

dmr